

## Testing With Extended Time on the SAT® I: Effects for Students With Learning Disabilities

### BACKGROUND ON ACCOMMODATED TESTING

The number of students with disabilities requesting accommodations, particularly extended time, has increased substantially in recent years. From 1992 to 1997, the number of students with disabilities requiring accommodations on the SAT® I has doubled, with annual increases averaging 14 percent (Camara, Copeland, and Rothschild, 1998). Among students with disabilities, those with learning disabilities represented nearly 90 percent. The number of ACT™ assessments administered under extended time rose from 8,519 for the 1989-90 school year to 23,463 during the 1995-96 school year (Ziomek and Andrews, 1998).

Accommodations may take several forms. *Presentation format* can be altered from the standard paper-and-pencil response booklet to include Braille or cassette versions, large print forms, or the use of a reader for visually impaired students. *Response format* might vary from the standard response sheet to include oral responses to an aide or large bubbled answer sheets. *Test setting* might be changed from the standard group administration to small group or individual administration. Finally, *timing* may be altered to include more frequent breaks between test sections, or extended response time to the test itself (Camara, 1998). All of these represent exceptions to standardized testing conditions. In some cases, students may request (or their disabilities may warrant) a combination of accommodations. Yet on the SAT I about 90 percent of all requests for accommodations are for students with learning disabilities and over two-thirds of these accommodations are simply for

extended time.

The recent growth in the number of students with learning disabilities requesting extended time warrants investigation of whether

scores obtained under accommodated testing conditions can be considered equivalent to scores received under normal standardized conditions. Accommodations are meant to partially compensate for a student's disability and to reduce or eliminate irrelevant factors (e.g., visual processing) that may affect testing performance. Affording extended time is intended to "level the playing field" by providing students with disabilities the additional time they may need to visually or mentally process the information. The SAT I is used to aid in decisions about college admission and scholarship eligibility. When scores are used to inform such comparisons between students, the issue of whether extended time truly equalizes the opportunities of disabled students with nondisabled individuals becomes increasingly important. For example, does extended time make the scores of learning disabled students more comparable with students testing with standard time limits? Similarly, if extended time is related to score increases, is the amount of extended time an issue?

As with most educational tests, the SAT I has time limits for administrative efficiency and standardization but is designed (1) to permit at least 80 percent of examinees to reach the last item on the test, and (2) to permit all examinees to reach 75 percent of the items. Clearly, a reasonable goal would be to establish extended time limits that permit students with disabilities to finish the SAT I at rates comparable to nondisabled test-takers (Ragosta and Wendler, 1992). However, the Americans with Disabilities Act (ADA) requires that the amount of extended time provided (or other such accommodations) be provided based on individual needs, not any standardized formula.

### CURRENT STUDY

Camara et al. (1998) built upon this early research to examine more precisely the score gains

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Score Change

associated with retaking the SAT I with extended time. They examined the SAT I scores for students who completed high school in 1995 or 1996, who took the SAT I first in the spring of their junior year (1994 or 1995), and then again in the fall of their senior year. Students were sorted into four distinct groups based on their SAT I history file: One group of students with no reported disabilities who took two successive standard-time administrations, and three groups of students with reported learning disabilities who took some combination of standard-time administration and extended-time administration. The four groups break out as follows:

**Group 1:** 706,537 students with no reported disabilities who took two or more standardized administrations of the SAT I with no special accommodations;

**Group 2:** 4,479 students with a learning disability who took two or more administrations of the SAT I with extended time;

**Group 3:** 3,836 students with a learning disability who completed a standard-time administration of the SAT I followed by an extended-time administration; and

**Group 4:** 784 students with a learning disability who took an extended-time administration of the SAT I followed by a standard-time administration.

The small number of students in the fourth group illustrates how rarely learning disabled students will take a standard-time administration of the SAT I after they have completed an extended-time administration. More commonly, learning disabled students will take successive extended-time administrations (49 percent) or an extended-time administration following an earlier standard-time

administration (42 percent). Ziomek and Andrews (1998) reported the same pattern with repeat takers of the ACT.

Table 1 displays the mean score gains for each of the four groups of students, calculated by subtracting the junior-year spring SAT I score from the senior-year fall SAT I score. All of the groups, with the exception of Group 4, showed score gains on both the SAT I verbal and math scales. Students in Group 4, who took an extended-time administration followed by a standard-time administration, showed modest score declines on both the verbal and math scales.

Residual score gain was estimated by subtracting the average standard-time junior to extended-time senior SAT I score gain (Group 3) from the average junior- to senior-year score gain for nondisabled students testing under standardized time (Group 1):

*Effects of extended time =*

$$\text{Mean score gain (Group 3)} - \text{Mean score gain (Group 1)}$$

Using the mean score gains from Table 1, this results in residual score gains of 31.7 (44.6 – 12.9) points and 26.3 (38.1 – 11.8) points on the verbal and math scales, respectively. These results are generally similar to those reported for the ACT (Ziomek and Andrews, 1998) and an earlier study conducted on the old SAT (Centra, 1986).

This method uses the mean score differences across all students, regardless of their initial score on the SAT I. However, researchers have shown that score gains obtained with retesting vary widely depending on a student's initial score. In

**TABLE 1**  
**MEAN SAT I SCORES AND STANDARD DEVIATIONS FOR STUDENTS REPEATING THE SAT I**

|   | Junior-Year<br>Math Mean | Senior-Year<br>Math Mean | Math<br>Gain   | Junior-Year<br>Verbal Mean | Senior-Year<br>Verbal Mean | Verbal<br>Gain |
|---|--------------------------|--------------------------|----------------|----------------------------|----------------------------|----------------|
| Group 1: Nondisabled Students<br>(standard – standard) <i>n</i> = 706,537 | 516.2<br>(96.1)          | 528.0<br>(100.4)         | 11.8<br>(47.1) | 510.4<br>(95.0)            | 523.3<br>(98.4)            | 12.9<br>(47.8) |
| Group 2: LD Students<br>(extended – extended) <i>n</i> = 4,479            | 459.8<br>(100.9)         | 472.2<br>(105.9)         | 12.4<br>(51.5) | 464.4<br>(97.6)            | 479.6<br>(100.3)           | 15.3<br>(53.8) |
| Group 3: LD Students<br>(standard – extended) <i>n</i> = 3,836            | 452.2<br>(100.5)         | 490.3<br>(105.3)         | 38.1<br>(57.5) | 449.1<br>(97.0)            | 493.7<br>(99.3)            | 44.6<br>(58.2) |
| Group 4: LD Students<br>(extended – standard) <i>n</i> = 784              | 442.6<br>(99.3)          | 436.5<br>(93.2)          | -6.1<br>(53.4) | 443.6<br>(97.5)            | 434.9<br>(93.4)            | -8.6<br>(57.4) |

general, the higher the initial score, the lower the subsequent score gain is likely to be, and vice versa (College Board, 1997). Students with lower scores on their first SAT I administration would more likely experience higher score gains when retesting under extended time than would students who had higher scores on their first SAT I administration. Therefore, score gains for students having different initial score ranges were computed to control for this effect.

Tables 2 and 3 report score gains on the verbal and math scales, respectively, obtained by the students in Group 3 (who tested under standard time in their junior year and then retested with extended time during their senior year), broken down by the initial (i.e., junior year) scores. In comparison, Tables 4 and 5 report similar data for students from Group 1 (nondisabled students who tested twice under standardized time conditions). Using Tables 2 and 3 in combination with Tables 4 and 5, one can compare the typical score gain for students with disabilities who first complete a standard-time SAT I followed by an extended-time SAT I (Group 3). For example, nondisabled students (Group 1) who had an initial score of 330 to 370 on the math scale when taking the SAT I as

juniors (Table 5) had a mean score of 374 on the math scale when retesting during their senior year. However, students with learning disabilities who completed a standard-time SAT I as juniors (Group 3) with math scores ranging from 330 to 370 (Table 3) had a mean math score of 385 when retesting with extended time during their senior year. Subtracting the gain for this latter group (3) from the former group (1) results in a residual gain of 11 points for students in Group 3. Contrary to expectations, the effect is even more pronounced in some of the higher initial score ranges. For nondisabled students who initially scored between 580 and 620 on the math scale, their mean senior year math score was 608, compared to 641 for the students in Group 3 who retested with extended time, for a residual score gain of 33 points on the math scale. Camara et al. (1998) note that these score gains may be partially due to the accommodation of extended time, but that other differences between the populations in Groups 1 and 3 might also contribute to the score discrepancies.

Figures 1 and 2 plot mean change in SAT I scores for all four groups based on students' initial score on the verbal and math scales, respectively.

**TABLE 2**  
**PERCENTAGE OF LEARNING DISABLED STUDENTS WITH SCORE CHANGES ON THE SAT I**  
**VERBAL SECTION WHEN TESTING WITH STANDARD TIME IN JUNIOR YEAR AND**  
**RETESTING WITH EXTENDED TIME IN SENIOR YEAR (GROUP 3) (n=3,836)**

| Junior-Year<br>Scores | ≤<br>-140 | -130<br>to<br>-110 | -110<br>to<br>-80 | -70<br>to<br>-50 | -40<br>to<br>-20 | -10<br>to<br>10 | 20<br>to<br>40 | 50<br>to<br>70 | 80<br>to<br>100 | 110<br>to<br>130 | ≥<br>140 | Mean<br>Senior<br>Score | n   |
|-----------------------|-----------|--------------------|-------------------|------------------|------------------|-----------------|----------------|----------------|-----------------|------------------|----------|-------------------------|-----|
| 200-270               |           |                    |                   | 1                | 3                | 8               | 7              | 17             | 19              | 21               | 24       | 337                     | 122 |
| 280-320               |           | 1                  | 2                 | 3                | 5                | 14              | 19             | 18             | 15              | 13               | 10       | 357                     | 199 |
| 330-370               | 1         | 1                  | 2                 | 3                | 7                | 13              | 22             | 20             | 17              | 10               | 4        | 394                     | 476 |
| 380-420               |           | 1                  | 2                 | 4                | 7                | 15              | 27             | 17             | 14              | 8                | 5        | 442                     | 712 |
| 430-470               |           | 1                  | 2                 | 4                | 7                | 17              | 21             | 21             | 14              | 8                | 5        | 492                     | 822 |
| 480-520               |           | 1                  | 1                 | 2                | 8                | 16              | 24             | 20             | 16              | 7                | 5        | 545                     | 775 |
| 530-570               |           |                    | 1                 | 4                | 7                | 17              | 26             | 22             | 14              | 5                | 4        | 591                     | 413 |
| 580-620               |           |                    | 1                 | 3                | 12               | 16              | 22             | 20             | 17              | 8                | 1        | 640                     | 244 |
| 630-670               |           |                    | 3                 | 5                | 16               | 7               | 18             | 28             | 13              | 3                | 3        | 681                     | 62  |
| 680-720               |           |                    | 4                 | 3                | 34               | 18              | 26             | 11             |                 | 7                |          | 706                     | 27  |
| 730-770               |           |                    |                   | 17               | 33               | 17              | 33             |                |                 |                  |          | 742                     | 6   |
| 780-800               |           |                    |                   |                  |                  |                 |                |                |                 |                  |          |                         | 0   |

**TABLE 3**  
**PERCENTAGE OF LEARNING DISABLED STUDENTS WITH SCORE CHANGES ON THE**  
**SAT I MATH SECTION WHEN TESTING WITH STANDARD TIME IN JUNIOR YEAR AND**  
**RETESTING WITH EXTENDED TIME IN SENIOR YEAR (GROUP 3) (n=3,836)**

| Junior-<br>Year<br>Scores | ≤<br>-140 | -130<br>to<br>-110 | -110<br>to<br>-80 | -70<br>to<br>-50 | -40<br>to<br>-20 | -10<br>to<br>10 | 20<br>to<br>40 | 50<br>to<br>70 | 80<br>to<br>100 | 110<br>to<br>130 | ≥<br>140 | Mean<br>Senior<br>Score | n   |
|---------------------------|-----------|--------------------|-------------------|------------------|------------------|-----------------|----------------|----------------|-----------------|------------------|----------|-------------------------|-----|
| 200-270                   |           |                    |                   | 3                | 4                | 7               | 12             | 17             | 17              | 15               | 25       | 324                     | 94  |
| 280-320                   |           | 1                  | 2                 | 5                | 10               | 9               | 22             | 21             | 17              | 9                | 4        | 343                     | 204 |
| 330-370                   |           | 1                  | 2                 | 6                | 11               | 15              | 20             | 20             | 14              | 8                | 3        | 385                     | 446 |
| 380-420                   | 1         | 1                  | 2                 | 4                | 14               | 20              | 23             | 18             | 10              | 5                | 2        | 425                     | 774 |
| 430-470                   |           | 1                  | 1                 | 5                | 10               | 18              | 24             | 20             | 11              | 6                | 4        | 486                     | 831 |
| 480-520                   |           |                    | 1                 | 4                | 9                | 17              | 35             | 20             | 14              | 8                | 6        | 545                     | 673 |
| 530-570                   |           |                    | 1                 | 3                | 8                | 15              | 23             | 20             | 17              | 7                | 6        | 597                     | 426 |
| 580-620                   |           |                    | 2                 | 2                | 8                | 21              | 20             | 22             | 14              | 7                | 4        | 641                     | 250 |
| 630-670                   |           |                    | 1                 | 5                | 12               | 17              | 28             | 18             | 9               | 7                | 3        | 685                     | 104 |
| 680-720                   |           | 3                  |                   | 12               | 12               | 34              | 15             | 15             | 3               | 6                |          | 711                     | 33  |
| 730-770                   |           |                    |                   |                  |                  |                 |                |                |                 |                  |          |                         | 0   |
| 780-800                   |           |                    |                   |                  |                  |                 | 100            |                |                 |                  |          | 800                     | 1   |

Controlling for the initial score range, the score gains observed for Groups 1 and 2 are essentially similar. Thus, students who completed successive standard-time administrations (Group 1) or succes-

sive extended-time administrations (Group 2) demonstrated the same pattern of modest score increases. However, the lines in Figures 1 and 2 that represent the data for Group 3 show much higher

**TABLE 4**  
**PERCENTAGE OF NONDISABLED STUDENTS WITH SCORE CHANGES ON THE SAT I**  
**VERBAL SECTION FROM JUNIOR TO SENIOR YEAR (STANDARD TIME) (GROUP 1) (n=706,537)**

| Junior-<br>Year<br>Scores | ≤<br>-140 | -130<br>to<br>-110 | -110<br>to<br>-80 | -70<br>to<br>-50 | -40<br>to<br>-20 | -10<br>to<br>10 | 20<br>to<br>40 | 50<br>to<br>70 | 80<br>to<br>100 | 110<br>to<br>130 | ≥<br>140 | Mean<br>Senior<br>Score | n       |
|---------------------------|-----------|--------------------|-------------------|------------------|------------------|-----------------|----------------|----------------|-----------------|------------------|----------|-------------------------|---------|
| 200-270                   |           |                    |                   | 3                | 4                | 11              | 14             | 18             | 18              | 15               | 17       | 310                     | 6,195   |
| 280-320                   |           | 1                  | 3                 | 4                | 8                | 14              | 20             | 21             | 16              | 8                | 5        | 342                     | 12,378  |
| 330-370                   | 1         | 1                  | 1                 | 6                | 10               | 18              | 23             | 21             | 12              | 5                | 2        | 380                     | 35,411  |
| 380-420                   |           | 1                  | 2                 | 6                | 13               | 22              | 25             | 19             | 8               | 3                | 1        | 421                     | 73,985  |
| 430-470                   |           | 1                  | 2                 | 6                | 16               | 24              | 25             | 17             | 7               | 1                | 1        | 465                     | 118,193 |
| 480-520                   |           | 1                  | 2                 | 7                | 17               | 27              | 25             | 14             | 5               | 2                |          | 510                     | 153,324 |
| 530-570                   |           | 1                  | 2                 | 8                | 19               | 26              | 25             | 13             | 4               | 2                |          | 558                     | 131,870 |
| 580-620                   |           | 1                  | 2                 | 8                | 19               | 27              | 22             | 12             | 5               | 2                |          | 608                     | 93,761  |
| 630-670                   |           | 1                  | 2                 | 10               | 19               | 27              | 22             | 12             | 5               | 2                |          | 656                     | 52,847  |
| 680-720                   |           | 1                  | 4                 | 11               | 21               | 25              | 20             | 11             | 6               | 1                |          | 712                     | 21,295  |
| 730-770                   |           | 2                  | 7                 | 14               | 23               | 25              | 19             | 10             |                 |                  |          | 738                     | 5,870   |
| 780-800                   | 1         | 3                  | 9                 | 19               | 23               | 36              | 9              |                |                 |                  |          | 787                     | 1,408   |

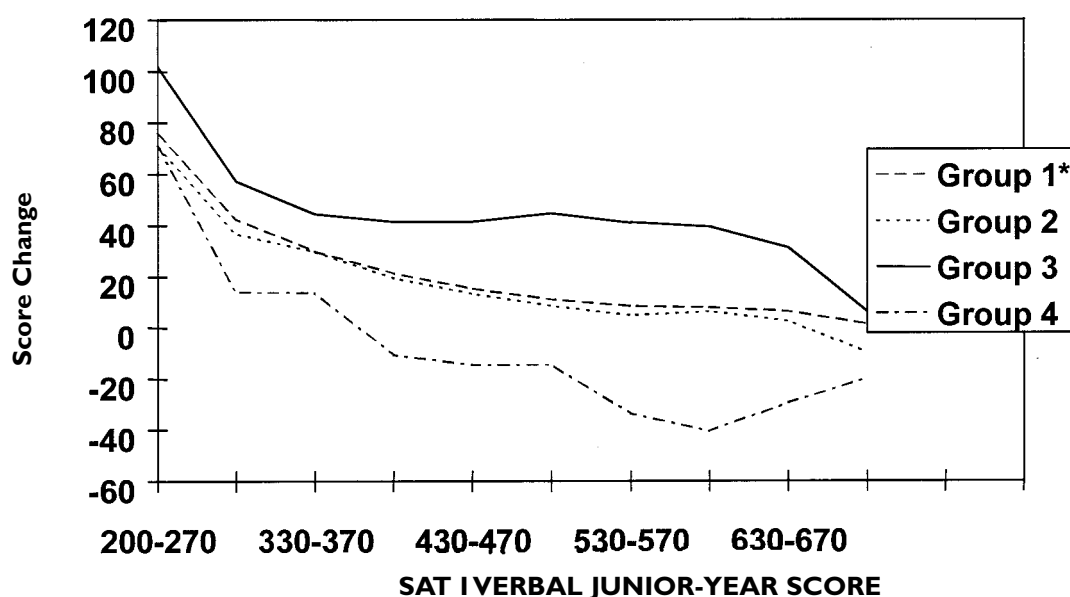
**TABLE 5**  
**PERCENTAGE OF NONDISABLED STUDENTS WITH SCORE CHANGES ON THE SAT I MATH SECTION FROM JUNIOR TO SENIOR YEAR (STANDARD TIME) (GROUP 1) (n=706,537)**

| Junior-Year Scores | ≤ -140 | -130 to -110 | -110 to -80 | -70 to -50 | -40 to -20 | -10 to 10 | 20 to 40 | 50 to 70 | 80 to 100 | 110 to 130 | ≥ 140 | Mean Senior Score | n       |
|--------------------|--------|--------------|-------------|------------|------------|-----------|----------|----------|-----------|------------|-------|-------------------|---------|
| 200-270            |        |              |             | 2          | 3          | 6         | 11       | 17       | 21        | 19         | 21    | 324               | 4,284   |
| 280-320            |        | 1            | 2           | 4          | 7          | 14        | 20       | 22       | 18        | 8          | 4     | 344               | 10,252  |
| 330-370            | 1      | 1            | 2           | 6          | 11         | 20        | 24       | 20       | 10        | 4          | 1     | 374               | 32,407  |
| 380-420            |        | 1            | 3           | 6          | 14         | 24        | 26       | 17       | 6         | 2          | 1     | 416               | 76,404  |
| 430-470            |        | 1            | 2           | 6          | 16         | 26        | 26       | 15       | 6         | 1          | 1     | 464               | 120,810 |
| 480-520            |        | 1            | 1           | 7          | 17         | 27        | 24       | 15       | 6         | 2          |       | 513               | 141,527 |
| 530-570            |        | 1            | 2           | 7          | 19         | 26        | 23       | 14       | 6         | 2          |       | 560               | 124,792 |
| 580-620            |        | 1            | 2           | 9          | 18         | 27        | 23       | 13       | 5         | 2          |       | 608               | 97,302  |
| 630-670            |        | 1            | 3           | 9          | 20         | 28        | 21       | 12       | 4         | 2          |       | 654               | 61,483  |
| 680-720            |        | 1            | 4           | 12         | 23         | 26        | 20       | 8        | 5         | 1          |       | 698               | 27,581  |
| 730-770            | 1      | 2            | 7           | 17         | 25         | 22        | 17       | 9        |           |            |       | 733               | 7,123   |
| 780-800            | 2      | 5            | 12          | 26         | 19         | 31        | 5        |          |           |            |       | 750               | 2,572   |

score gains. In fact, students in this group, who take a standard-time administration of the SAT I in their junior year followed by an extended-time administration in their senior year, show score gains of up to three times greater than the students in Groups 1 and 2. As might be expected, the students in Group 4, who take an extended-time version of the SAT I followed by a standard-time administration,

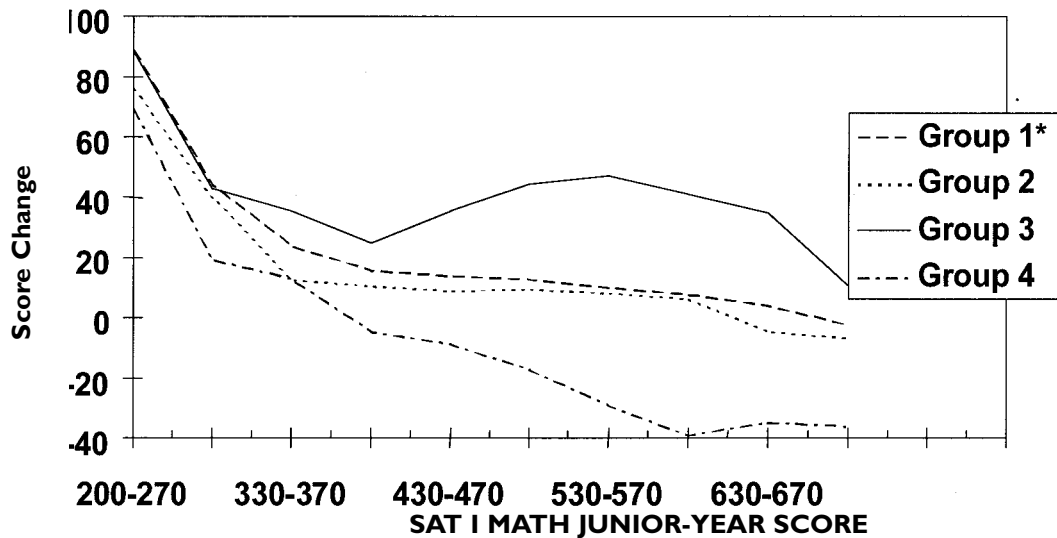
have smaller score increases when their initial SAT I score is low (under 400). However, when these students generally score 400 or above with extended time, subsequent testing under standard time decreases their mean SAT I scores.

These data provide clear evidence that extended time has a strong effect on score gains. This leads to the issue of whether the *amount* of



**Figure 1.** SAT I verbal junior to senior score change for learning disabled and nondisabled test-takers.

\*Nondisabled test-takers



\*Nondisabled test-takers

**Figure 2.** SAT I math junior to senior score change for learning disabled and nondisabled test-takers.

extra time used directly affects the total score gain. The standard time for each section of the SAT I is 75 minutes. Some disabled students complete the test in time and half (an extra 38 minutes), some use double time (an extra 75 minutes) and some use even more than double time (an extra 76 minutes or longer). As Table 6 demonstrates, score gain on both the math and verbal scales increases proportionally to the amount of extra time students use during the extended-time administration of the SAT I. Turning to the columns that depict score gains on the math and verbal scales, students who request additional time but complete the test in standard time have gains of 19.9 and 23.7 points on the math and verbal scales, respectively. When up to time and a half is taken to complete each section, score gains rise to 36.3 and 38 points on the math and verbal scales. And when the amount of time used ranges from time and a half to double time, score gains rise to a mean of 102.9 points on the math scale and 60.2 points on the verbal scale.

There also appears to be an effect on the baseline score and the amount of additional time used by students in Group 3. Looking at the columns in Table 6 that display mean junior-year math scores and junior-year verbal scores, we see that the higher a student's initial score, the more additional time he or she was likely to use during retesting.

Correlations between standard-time and extended-time SAT I scores for students in each group ranged from .820 to .877 between initial

(spring junior year) and successive (fall senior year) scores for all four groups of students. All of the correlations were high and statistically significant, which indicates that students' relative rankings were unlikely to change as a result of retesting with additional time. Finally, correlations between standard-time and extended-time SAT I scores for students in Group 3 were examined as a function of the amount of additional time students used to complete the second test. Correlations between initial and subsequent math scores ranged from .842 to .844 for students taking up to double time, and dipped down to .801 for students taking more than double time. Similarly, the correlations between initial and subsequent verbal scores ranged from .812 to .848 for those taking up to double time, and dipped down to .783 for students taking more than double time.

## COMPARABILITY OF TESTS WITH ACCOMMODATIONS

While accommodated conditions may partially compensate for a student's learning disability, research has demonstrated that the resulting scores may not be strictly comparable to SAT I scores obtained under standardized conditions. Most notably, scores obtained with extended time may not predict academic success as well as scores obtained under standardized administrations. Ziomek and Andrews (1996) found that the combination of high school

**TABLE 6**  
**MEAN SAT I SCORES AND STANDARD DEVIATIONS FOR**  
**LEARNING DISABLED STUDENTS IN GROUP 3**

| <b>Extended Time in Minutes</b> | <b>Junior-Year Math Mean</b>        | <b>Senior-Year Math Mean</b>         | <b>Math Gain</b>                   | <b>Junior-Year Verbal Mean</b>      | <b>Senior-Year Verbal Mean</b>       | <b>Verbal Gain</b>                 |
|---------------------------------|-------------------------------------|--------------------------------------|------------------------------------|-------------------------------------|--------------------------------------|------------------------------------|
| 0                               | 430.6<br>(91.8)<br><i>n</i> = 1,564 | 450.4<br>(104.4)<br><i>n</i> = 1,564 | 19.8<br>(56.1)<br><i>n</i> = 1,564 | 438.1<br>(91.7)<br><i>n</i> = 1,281 | 461.8<br>(104.7)<br><i>n</i> = 1,281 | 23.7<br>(61.1)<br><i>n</i> = 1,281 |
| 1–38                            | 458.5<br>(92.7)<br><i>n</i> = 1,408 | 494.8<br>(99.8)<br><i>n</i> = 1,408  | 36.3<br>(50.3)<br><i>n</i> = 1,408 | 447.0<br>(94.8)<br><i>n</i> = 1,329 | 485.0<br>(98)<br><i>n</i> = 1,329    | 38.0<br>(52.4)<br><i>n</i> = 1,329 |
| 39–75                           | 477.0<br>(86.6)<br><i>n</i> = 574   | 579.9<br>(89.0)<br><i>n</i> = 574    | 102.9<br>(53.1)<br><i>n</i> = 574  | 464.6<br>(86.6)<br><i>n</i> = 827   | 524.8<br>(95.4)<br><i>n</i> = 827    | 60.2<br>(50.9)<br><i>n</i> = 827   |
| ≥ 76                            | 489.9<br>(77.2)<br><i>n</i> = 281   | 559.0<br>(99.9)<br><i>n</i> = 281    | 69.1<br>(56.5)<br><i>n</i> = 281   | 460.8<br>(79.1)<br><i>n</i> = 390   | 545.6<br>(88.3)<br><i>n</i> = 390    | 84.8<br>(55.8)<br><i>n</i> = 390   |
| Total<br><i>n</i> = 3,827*      | 452.2<br>(92.5)<br><i>n</i> = 3,827 | 490.3<br>(108.7)<br><i>n</i> = 3,827 | 38.1<br>(57.5)<br><i>n</i> = 3,827 | 449.1<br>(91.7)<br><i>n</i> = 3,827 | 493.7<br>(102)<br><i>n</i> = 3,827   | 44.7<br>(58.2)<br><i>n</i> = 3,827 |

\*Data on time required to complete sections of the SAT I were missing for nine students from Group 3.

grades and ACT scores overpredicted first-year college grade-point averages (GPAs) for special-tested students. Wightman (1993) reported that individuals taking an accommodated administration of the Law School Admission Test (LSAT<sup>®</sup>) were: (1) likely to have a higher mean score than those taking a standard administration; (2) admitted to law school in the same proportion as students taking the standard-time LSAT (except for learning disabled students, whose actual admission rate was lower); but (3) likely to earn first-year law school grades that were lower than would be predicted by their LSAT score and undergraduate GPA. These findings have implications for admission personnel who use SAT I scores from both standard- and extended-time administrations to make norm-referenced comparisons between students.

In an extensive series of research studies that examined the impact of accommodations for disabled students taking the SAT and Graduate Record Examinations<sup>®</sup> (GRE<sup>®</sup>) in the mid-1980s, researchers at Educational Testing Service (ETS) concluded that the practices used for providing extended-time

for learning disabled students resulted in some degree of noncomparability (Willingham, Ragosta, Bennett, Braun, Rock, and Powers, 1988). They explained that time limits provided to learning disabled students should be more closely tied to the type and severity of a student's disability in order to improve test validity. They cited three types of evidence of noncomparability of extended-time scores for learning disabled students:

1. Predicted versus actual college performance was higher for learning disabled students completing the SAT and GRE with extended time, while no such pattern was observed when the same students' grades were predicted on the basis of their high school record alone. This suggests the overprediction with test scores is partially related to additional time that is beyond what is necessary for comparability.
2. A greater proportion of examinees given extended time were able to complete the test.
3. "Items toward the end of the SAT and GRE proved differentially easy ... the apparent

explanation is that having more time increased the likelihood of reaching those late items and getting some right, even though they tend to be the most difficult" (Willingham, et al., 1988, p. 163).

For example, it is possible that extended time allows disabled students to test at their full potential, but if accommodations are not available at the admitting school, the students' "true" abilities will be undermeasured (Wightman, 1993). That is, if extended time is not permitted for college exams, then disabled students' college GPA's will likely be lower than predicted by their accommodated SAT I score.

Historically, admission tests have included a "flagged" test score for nonstandard administrations of standardized tests. Overtly, the flag indicates to score recipients that some deviation was made from the standardized conditions during that student's testing, such as allowing extended time. Indirectly, but perhaps more importantly, the flag indicates that the score may not be comparable to one received during a standardized administration (Mehrens, 1997). The research by Camara et al. (1998) indicates a need to continue alerting score recipients to accommodations, such as extended time, that clearly impact score gains based on the revised testing standards (AERA, APA, NCME, 1999).

Ideally, research could establish precise limits for extended time that would equalize opportunity and completion rates for disabled students with those of nondisabled individuals. Mehrens (1997) notes, however, that obviating flagging would require: (1) appropriately classifying learning disabilities by type and severity; (2) demonstrating the specific accommodations, such as exact amount of extended time, for which disabled students perform similarly to nondisabled students testing under standardized conditions; and (3) cross-validating the results with another group of test-takers having similar disabilities and receiving the same accommodations. Achieving these goals would eliminate the need for flagging, and would help admission personnel make more confident decisions regarding students with disabilities. However, given the ADA's requirement for individualized accommodations, these research goals are unattainable. Future developments are uncertain, but, for now, cautious interpretation of flagged SAT I scores is warranted.

## INITIAL CONCLUSIONS

In sum, research offers several important conclusions about extended-time administrations of the SAT I for students with learning disabilities:

- The number of students requesting accommodations has increased in recent years, and the effects of extended time have become increasingly important as this is the only accommodation for 7 of 10 of these students completing the SAT I.
- Allowing learning disabled students to retest with extended time clearly enables them to improve their SAT I scores, but gains associated with extended time are generally modest, with mean gains of 32 and 26 points on the verbal and math scales, respectively.
- Score gain on the SAT I increases with additional amounts of extended time.
- Additional time should serve as a compensating factor for students with learning disabilities, but time and a half or double time may overcompensate for some students, permitting them to respond more leisurely and result in overprediction of college performance.
- Score ranges on the first administration of the SAT I apparently relate to both the amount of time used during retesting and associated score gains. Students with higher scores on their first administration of the SAT I are more likely, when retesting, to (1) use more additional time than students with lower initial scores, and (2) have higher residual score gains than students who initially fall in the lower score ranges.
- Some research indicates that extended time may actually alter the construct being measured by the SAT I. Students given ample or unlimited time may utilize different response patterns by reaching more of the items and by reading and responding to questions more leisurely.

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